PCT09

*See page 6.*

RAW SEQUENCE LISTING  DATE: 05/05/2003
PATENT APPLICATION: US/09/857,524B  TIME: 09:08:59

Input Set : A:\BB1264Seq list.txt
Output Set: N:\CRF4\05022003\I857524B.raw

ENTERED

```
 3 <110> APPLICANT: Edgar B. Cahoon
 4        Rebecca E. Cahoon
 5        William D. Hitz
 6        Anthony J. Kinney
 8 <120> TITLE OF INVENTION: Membrane-Bound Desaturases
10 <130> FILE REFERENCE: BB1264
12 <140> CURRENT APPLICATION NUMBER: US/09/857,524B
13 <141> CURRENT FILING DATE: 2001-06-04
15 <150> PRIOR APPLICATION NUMBER: 60/110,784
16 <151> PRIOR FILING DATE: 1998-12-03
18 <160> NUMBER OF SEQ ID NOS: 17
20 <170> SOFTWARE: Microsoft Office 97
22 <210> SEQ ID NO: 1
23 <211> LENGTH: 1471
24 <212> TYPE: DNA
25 <213> ORGANISM: Picramnia pentandra
27 <220> FEATURE:
28 <221> NAME/KEY: unsure
29 <222> LOCATION: (1402)
30 <223> OTHER INFORMATION: n = A, C, G, or T
32 <400> SEQUENCE: 1
33 cttccttgtt cctggaattt tcaaatcact tcctctgttg cacttcaatg gaagagccaa   60
34 agaagcacat ttcgcaagca gaccttgcaa agcataagca accaggagat ttatggatct  120
35 ctatcaaggg aaaagtttac gatatctcca agtggactaa agagcatccc ggtggtgagc  180
36 tcccattgtt aagttttgcc ggccaagatg tcactgatgc gttcattgct taccatcctg  240
37 gcactgcttg gcaatacctt gacaggttct ttactgggta ctacgttcaa gattactctg  300
38 tctctgagat gtccaaggac tacagaaggc tcgtctctga gttttctaag atgggtttgt  360
39 tcaagacacc aggcaaaggg gtctactgct caatcttttt cgtgtctgtg ttgttcgctc  420
40 tgagtgttta cggtgttctc tactgcaaga gcacctgggc tcatctttgc tctggtttgc  480
41 taatgggtat gctatggctc cagagtggtt gggtggggca tgattcttgt cactaccaag  540
42 ttatgcctaa ccgtaagctt aatcgtcttt ttcaaatcat tgcaggaaat gtgattgctg  600
43 gtgttagtgt tgcatggtgg aagttggacc ataacaccca tcactttgcc tgtaatagcg  660
44 ccaatctgga tcctgatatt cagcaccttc ctataattgc catatcccca aaatttttca  720
45 actcccttac atcatactat cacaactgca aaatgaccta tgatcgcgct gccaggtttt  780
46 ttgttagctt tcagcactgg acattttatc ctgcattgtt aagcgttagg ctctatcttt  840
47 ttattctgtc ttttaaggtg gtgttttcca acaacaaaag ggtatacaag agaagtcagg  900
48 aaattttagg ctatgcagct ttcttgactt ggtattctct actcctttct cgcctaccca  960
49 attggcctga aagggtcatg tatttcacgt cctgtttagc agtcgccggg ttccaacatt 1020
50 ggcagttcag cttgaatcac tttgcttcta atgtttacac tggtttgcct agcggtaatg 1080
51 attggtttca ccagcagaca aagggcacgc tcaacataac agcttctgct tggtgggatt 1140
52 ggtttcatgg tggcctgcac tttcagattg agcatcatct gtttccaagg atgcctaagt 1200
53 gccattcag gaaaatctca cccattgtga caaactttg ccagaagcat aatttgtcct 1260
54 atgaaactgc taccatgtgg gaggccaata aaatggtata ctccaccctg cgtgctgtgg 1320
```

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/857,524B

DATE: 05/05/2003  
TIME: 09:08:59

Input Set : A:\BB1264Seq list.txt  
Output Set: N:\CRF4\05022003\I857524B.raw

```
       55 ctatggaagc taaggatgtt accaagccag ttcccaagaa catggtctgg gaagcaatga 1380
W--> 56 acactttcgg gtgaacctta tnaaacatca agtgctgtct ttcccgtaaa agcttccagt 1440
       57 cccaatgttt cttttttttt tttttttttt t                               1471
       59 <210> SEQ ID NO: 2
       60 <211> LENGTH: 448
       61 <212> TYPE: PRT
       62 <213> ORGANISM: Picramnia pentandra
       64 <400> SEQUENCE: 2
       65 Met Glu Glu Pro Lys Lys His Ile Ser Gln Ala Asp Leu Ala Lys His
       66  1               5                  10                  15
       68 Lys Gln Pro Gly Asp Leu Trp Ile Ser Ile Lys Gly Lys Val Tyr Asp
       69              20                  25                  30
       71 Ile Ser Lys Trp Thr Lys Glu His Pro Gly Gly Glu Leu Pro Leu Leu
       72          35                  40                  45
       74 Ser Phe Ala Gly Gln Asp Val Thr Asp Ala Phe Ile Ala Tyr His Pro
       75      50                  55                  60
       77 Gly Thr Ala Trp Gln Tyr Leu Asp Arg Phe Phe Thr Gly Tyr Tyr Val
       78 65                  70                  75                  80
       80 Gln Asp Tyr Ser Val Ser Glu Met Ser Lys Asp Tyr Arg Arg Leu Val
       81              85                  90                  95
       83 Ser Glu Phe Ser Lys Met Gly Leu Phe Lys Thr Pro Gly Lys Gly Val
       84              100                 105                 110
       86 Tyr Cys Ser Ile Phe Phe Val Ser Val Leu Phe Ala Leu Ser Val Tyr
       87          115                 120                 125
       89 Gly Val Leu Tyr Cys Lys Ser Thr Trp Ala His Leu Cys Ser Gly Leu
       90      130                 135                 140
       92 Leu Met Gly Met Leu Trp Leu Gln Ser Gly Trp Val Gly His Asp Ser
       93 145                 150                 155                 160
       95 Cys His Tyr Gln Val Met Pro Asn Arg Lys Leu Asn Arg Leu Phe Gln
       96              165                 170                 175
       98 Ile Ile Ala Gly Asn Val Ile Ala Gly Val Ser Val Ala Trp Trp Lys
       99              180                 185                 190
      101 Leu Asp His Asn Thr His His Phe Ala Cys Asn Ser Ala Asn Leu Asp
      102          195                 200                 205
      104 Pro Asp Ile Gln His Leu Pro Ile Ile Ala Ile Ser Pro Lys Phe Phe
      105      210                 215                 220
      107 Asn Ser Leu Thr Ser Tyr Tyr His Asn Cys Lys Met Thr Tyr Asp Arg
      108 225                 230                 235                 240
      110 Ala Ala Arg Phe Phe Val Ser Phe Gln His Trp Thr Phe Tyr Pro Ala
      111              245                 250                 255
      113 Leu Leu Ser Val Arg Leu Tyr Leu Phe Ile Leu Ser Phe Lys Val Val
      114          260                 265                 270
      116 Phe Ser Asn Asn Lys Arg Val Tyr Lys Arg Ser Gln Glu Ile Leu Gly
      117          275                 280                 285
      119 Tyr Ala Ala Phe Leu Thr Trp Tyr Ser Leu Leu Leu Ser Arg Leu Pro
      120      290                 295                 300
      122 Asn Trp Pro Glu Arg Val Met Tyr Phe Thr Ser Cys Leu Ala Val Ala
      123 305                 310                 315                 320
      125 Gly Phe Gln His Trp Gln Phe Ser Leu Asn His Phe Ala Ser Asn Val
```

Input Set : A:\BB1264Seq list.txt
Output Set: N:\CRF4\05022003\I857524B.raw

```
126                 325                 330                 335
128 Tyr Thr Gly Leu Pro Ser Gly Asn Asp Trp Phe His Gln Gln Thr Lys
129                 340                 345                 350
131 Gly Thr Leu Asn Ile Thr Ala Ser Ala Trp Trp Asp Trp Phe His Gly
132             355                 360                 365
134 Gly Leu His Phe Gln Ile Glu His His Leu Phe Pro Arg Met Pro Lys
135       370                 375                 380
137 Cys His Phe Arg Lys Ile Ser Pro Ile Val Asn Lys Leu Cys Gln Lys
138 385                 390                 395                 400
140 His Asn Leu Ser Tyr Glu Thr Ala Thr Met Trp Glu Ala Asn Lys Met
141                 405                 410                 415
143 Val Tyr Ser Thr Leu Arg Ala Val Ala Met Glu Ala Lys Asp Val Thr
144             420                 425                 430
146 Lys Pro Val Pro Lys Asn Met Val Trp Glu Ala Met Asn Thr Phe Gly
147             435                 440                 445
```

```
149 <210> SEQ ID NO: 3
150 <211> LENGTH: 1764
151 <212> TYPE: DNA
152 <213> ORGANISM: Zea mays
154 <400> SEQUENCE: 3
155 gcacgagctc cctctctctc cccaatcctc cccgcctccc cctaccaaat cagcaccacc   60
156 caaggcgcat ccgagccacg gccgcgcaat gccgccctct gtcgatgcaa tgccggcccc  120
157 cggcgacgcc gcgggcgccg gcgacgtgcg catgatctcc tccaaggagc tccgcgctca  180
158 cgcttccgcc gacgacctct ggatctccat ctccggcgac gtgtacgacg tcacgccctg  240
159 gctcccccac cacccgggcg cgacctccc gcttctcacc ctggcggggc aggacgccac  300
160 cgacgccttc gccgcctacc acccgccctc ggcgcgcccg ctcctccgcc gcttcttcgt  360
161 tggccgcctc tctgactacg ccgtctcccc cgcgtccgcc gactaccgcc gcctcctcgc  420
162 gcagctatcc tccgcgggcc tcttcgaacg cgtcggcccc accccaagg tccagctcgt  480
163 cctgatggcc gtcctcttct acgccgcgct gtacctcgtc ctcgcatgcg ccagcgcctg  540
164 ggcgcacctc ctcgcggggg gtctcattgg cttcgtctgg atccagtccg gctggatggg  600
165 ccacgactcg ggccaccacc gcatcaccgg ccatccggtc ctcgaccgcg tcgtgcaggt  660
166 gctctccggg aactgcctca ccggcctcag catcgcctgg tggaagtgta accacaacac  720
167 gcaccacatc gcctgcaaca gcctggacca tgacccggac ctccagcaca tgccgctctt  780
168 tgccgtctcc cccaagctgt tcggcaacat atggtcctac ttctaccaac ggaccctggc  840
169 gttcgatgcc gcctcgaaat tcttcatcag ctaccagcac tggaccttct acccggtaat  900
170 gtgcatcgcc aggataaatc ttctcgcgca gtccgccctg ttcgttctca cggagaagag  960
171 ggtgccgcag cggttgcttg agatcgcggg ggtcgccaca ttctgggctt ggtaccgtt  1020
172 gctggtggct ccctgccga attggtggga gagggtcgcg tttgtgcttt tcagcttcac 1080
173 catctgcggg attcagcacg tccaattctg cctgaaccac ttctcgtccg acgtgtatgt 1140
174 cgggccaccc aagggcaatg actggtttga gaagcagacg gcaggcacgc tcgacatcct 1200
175 gtgctctcct tggatggatt ggttccacgg tggcctgcag ttccagattg agcaccatct 1260
176 gtttcccgc ctacctcggt gccaccttcg caaggttgca ccggccgtcc gcgacctttg 1320
177 caagaagcat gggctcactt attctgcagc cacattctgg ggtgcaaatg tgcttacatg 1380
178 gaagacactc agggctgctg cattgcaggc caggaccgct acaagtggtg gtgctccgaa 1440
179 gaatttggta tgggaggctg tgaacaccca tggataaatg ggatgaagat acgggctaat 1500
180 ggcaacttct ggtgttcagc ttggtgccca tgtgattgtc tggatgcctt tcagttattt 1560
181 agagatattg atcattcaac ctgcctgagt caggttggaa ttttcgtgtt gacaagtggc 1620
182 tgtctatcca gttggagagt tcatgcttca atagtctggt tgttcacggg atgttctgtt 1680
183 ctccctatca cggtaactat atgatgatga tccttgcttt aattcatgaa cacttgtttc 1740
```

Input Set : A:\BB1264Seq list.txt
Output Set: N:\CRF4\05022003\I857524B.raw

```
184 aagattaaaa aaaaaaaaaa aaaa                                          1764
186 <210> SEQ ID NO: 4
187 <211> LENGTH: 462
188 <212> TYPE: PRT
189 <213> ORGANISM: Zea mays
191 <400> SEQUENCE: 4
192 Met Pro Pro Ser Val Asp Ala Met Pro Ala Pro Gly Asp Ala Ala Gly
193  1               5                  10                  15
195 Ala Gly Asp Val Arg Met Ile Ser Ser Lys Glu Leu Arg Ala His Ala
196              20                  25                  30
198 Ser Ala Asp Asp Leu Trp Ile Ser Ile Ser Gly Asp Val Tyr Asp Val
199              35                  40                  45
201 Thr Pro Trp Leu Pro His His Pro Gly Gly Asp Leu Pro Leu Leu Thr
202         50                  55                  60
204 Leu Ala Gly Gln Asp Ala Thr Asp Ala Phe Ala Ala Tyr His Pro Pro
205  65                  70                  75                  80
207 Ser Ala Arg Pro Leu Leu Arg Arg Phe Phe Val Gly Arg Leu Ser Asp
208                  85                  90                  95
210 Tyr Ala Val Ser Pro Ala Ser Ala Asp Tyr Arg Arg Leu Leu Ala Gln
211             100                 105                 110
213 Leu Ser Ser Ala Gly Leu Phe Glu Arg Val Gly Pro Thr Pro Lys Val
214             115                 120                 125
216 Gln Leu Val Leu Met Ala Val Leu Phe Tyr Ala Ala Leu Tyr Leu Val
217         130                 135                 140
219 Leu Ala Cys Ala Ser Ala Trp Ala His Leu Leu Ala Gly Gly Leu Ile
220 145                 150                 155                 160
222 Gly Phe Val Trp Ile Gln Ser Gly Trp Met Gly His Asp Ser Gly His
223             165                 170                 175
225 His Arg Ile Thr Gly His Pro Val Leu Asp Arg Val Val Gln Val Leu
226             180                 185                 190
228 Ser Gly Asn Cys Leu Thr Gly Leu Ser Ile Ala Trp Trp Lys Cys Asn
229         195                 200                 205
231 His Asn Thr His His Ile Ala Cys Asn Ser Leu Asp His Asp Pro Asp
232     210                 215                 220
234 Leu Gln His Met Pro Leu Phe Ala Val Ser Pro Lys Leu Phe Gly Asn
235 225                 230                 235                 240
237 Ile Trp Ser Tyr Phe Tyr Gln Arg Thr Leu Ala Phe Asp Ala Ala Ser
238             245                 250                 255
240 Lys Phe Phe Ile Ser Tyr Gln His Trp Thr Phe Tyr Pro Val Met Cys
241         260                 265                 270
243 Ile Ala Arg Ile Asn Leu Leu Ala Gln Ser Ala Leu Phe Val Leu Thr
244         275                 280                 285
246 Glu Lys Arg Val Pro Gln Arg Leu Leu Glu Ile Ala Gly Val Ala Thr
247     290                 295                 300
249 Phe Trp Ala Trp Tyr Pro Leu Leu Val Ala Ser Leu Pro Asn Trp Trp
250 305                 310                 315                 320
252 Glu Arg Val Ala Phe Val Leu Phe Ser Phe Thr Ile Cys Gly Ile Gln
253             325                 330                 335
255 His Val Gln Phe Cys Leu Asn His Phe Ser Ser Asp Val Tyr Val Gly
```

```
256            340            345            350
258 Pro Pro Lys Gly Asn Asp Trp Phe Glu Lys Gln Thr Ala Gly Thr Leu
259         355            360            365
261 Asp Ile Leu Cys Ser Pro Trp Met Asp Trp Phe His Gly Gly Leu Gln
262     370            375            380
264 Phe Gln Ile Glu His His Leu Phe Pro Arg Leu Pro Arg Cys His Leu
265 385            390            395            400
267 Arg Lys Val Ala Pro Ala Val Arg Asp Leu Cys Lys Lys His Gly Leu
268         405            410            415
270 Thr Tyr Ser Ala Ala Thr Phe Trp Gly Ala Asn Val Leu Thr Trp Lys
271         420            425            430
273 Thr Leu Arg Ala Ala Ala Leu Gln Ala Arg Thr Ala Thr Ser Gly Gly
274         435            440            445
276 Ala Pro Lys Asn Leu Val Trp Glu Ala Val Asn Thr His Gly
277     450            455            460
279 <210> SEQ ID NO: 5
280 <211> LENGTH: 880
281 <212> TYPE: DNA
282 <213> ORGANISM: Glycine max
284 <220> FEATURE:
285 <221> NAME/KEY: unsure
286 <222> LOCATION: (496)
287 <223> OTHER INFORMATION: n = A, C, G, or T
289 <220> FEATURE:
290 <221> NAME/KEY: unsure
291 <222> LOCATION: (512)
292 <223> OTHER INFORMATION: n = A, C, G, or T
294 <220> FEATURE:
295 <221> NAME/KEY: unsure
296 <222> LOCATION: (523)
297 <223> OTHER INFORMATION: n = A, C, G, or T
299 <220> FEATURE:
300 <221> NAME/KEY: unsure
301 <222> LOCATION: (532)
302 <223> OTHER INFORMATION: n = A, C, G, or T
304 <220> FEATURE:
305 <221> NAME/KEY: unsure
306 <222> LOCATION: (630)
307 <223> OTHER INFORMATION: n = A, C, G, or T
309 <220> FEATURE:
310 <221> NAME/KEY: unsure
311 <222> LOCATION: (700)
312 <223> OTHER INFORMATION: n = A, C, G, or T
314 <220> FEATURE:
315 <221> NAME/KEY: unsure
316 <222> LOCATION: (730)
317 <223> OTHER INFORMATION: n = A, C, G, or T
319 <220> FEATURE:
320 <221> NAME/KEY: unsure
```

**RAW SEQUENCE LISTING ERROR SUMMARY**     DATE: 05/05/2003
PATENT APPLICATION:   **US/09/857,524B**      TIME: 09:09:00

Input Set : **A:\BB1264Seq list.txt**
Output Set: **N:\CRF4\05022003\I857524B.raw**

<u>Please Note:</u>
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 1402
Seq#:5; N Pos. 496,512,523,532,630,700,730,738,761,764,814,822,824,838,842
Seq#:5; N Pos. 876
Seq#:6; Xaa Pos. 161,166,170,173,206,252
Seq#:16; N Pos. 48,538,686,704,717,727,729,737,741,750,751,769,777,807

**VERIFICATION SUMMARY**
PATENT APPLICATION:  **US/09/857,524B**

DATE: 05/05/2003
TIME: 09:09:00

Input Set : **A:\BB1264Seq list.txt**
Output Set: **N:\CRF4\05022003\I857524B.raw**

```
L:56 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:1380
L:373 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:480
M:341 Repeated in SeqNo=5
L:447 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:160
M:341 Repeated in SeqNo=6
L:1106 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:0
M:341 Repeated in SeqNo=16
```